

US EPA ARCHIVE DOCUMENT

**Proceedings of the Environmental Protection Agency  
PUBLIC MEETING ON WASTE LEACHING  
Session V - Leaching Policy and Applications and Wrap-Up**

**Panel III - Test Design and Implications: Treatment Effectiveness**

Gail Hansen, of EPA's Office of Solid Waste, opened the panel discussion by posing several questions:

1. How do we determine if the treatment is effective?
2. Does the treatment meet the best demonstrated available technology (BDAT)?
3. How do we address nontraditional treatments such as vitrification?
4. How long do we have to test to determine long-term stability?

Trish Erickson, of the EPA Office of Emergency and Remedial Response (OERR), described how the Superfund program utilizes leaching tests to evaluate treatments of hazardous wastes used for site remediation. She discussed how leaching tests are used to demonstrate both short-term and long-term environmental compatibility. Leaching tests maybe used to demonstrate the effects of treatment. She noted that such uses of leaching tests must be sufficiently supported by theory to identify "trick" treatments and conditions that would cause failure. EPA needs tests that have been validated in the field, not just the laboratory. The tests should be inexpensive, quick, simple procedures, free of interferences, equally effective for the full range of contaminants of concern and a variety of dispositions.

She described how under ideal circumstances, EPA would like a test that works for both short-term and long-term problems. Such tests would be used to determine the effectiveness of waste treatments and the reasons that the treatments are effective. They could be used identify ill-conceived treatments and alert the user to incompatible situations. Tests would be simple and inexpensive and applicable to any disposal environment.

Other concerns that EPA would like to have addressed are the need for tests to be compatible with risk assessment. In addition, reactive wastes are a special concern particularly when managed in a different environment than where they are generated. Ms. Erickson concluded by stating that it is not possible to achieve all of these goals, and there may be a need to compromise some test attributes to achieve the best possible balance.

Bill Ziegler, of ENSCO, presented his perspective on leaching tests. He stated that the TCLP is a good indicator of treatment. However, there are several problems with using TCLP results to assess treatment technologies. He mentioned that pH is an overriding factor. A target pH range would be 8 to 9, but that there was a need to be use a surgical approach to focus work during treatment.

Mr. Ziegler indicated that the original mismanagement/disposal scenario inherent in the TCLP may not be appropriate for all treatment studies. In particular, the actual leachate has a higher pH

and the oxyanions may be a problem. As a result, investigators must focus on a pH during treatment as they may be adding more alkali than needed due to using the TCLP.

Mr. Ziegler advocated several options, resulting in several benefits. He suggested a single test at neutral pH and a test employing two pH ranges, one low and one high. He described several other considerations:

5. there must be consistency among EPA Regions and States
6. new tests should not be used to challenge prior decisions
7. recognition that a "totals analysis" is not appropriate,

and noted that he was not comfortable with the use of multiple test scenarios.

Mike Winka, of the New Jersey Department of Environmental Protection (NJDEP), described his state's treatment technology verification program. He noted that one of their goals was the harmonization (reciprocity) of programs, such as has been done in the Netherlands. He believed that the rules can be revised, and the goal should be clean air and water. He stated that the inertia of the current system must be broken.

Mr. Winka described several technologies that have been evaluated. New Jersey has looked at chrome treatment by concentration. This requires part A/B, but New Jersey has worked around it. Lead in soil issues have been affected by the TCLP, using stabilization with alternate leaching at various pH and total metals analyses. Soil washing and phytoremediation have been evaluated using mass balance, total metals. He stressed the need to match the test to the situation. It is possible to have beneficial use standards using various tests including the TCLP. At present they use total metals. However, as the state moves to alternative tests, Mr Winka indicated that there is a need to develop alternate standards. He said that partnerships with states are preferred over delegated responsibility.